

# ATOMIC ENERGY

THE FIRST

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October 20th, 1953  
Vol. 10...No. 6

Dear Sir:

United States and British officials connected with their country's nuclear energy activities have now concluded a series of conferences held in Washington concerning the exchange of information on nuclear energy, and the possibility of greater cooperative effort were the Atomic Energy Act (1946) liberalized by Congress. Britons included Sir John Cockcroft, head of the Atomic Energy Research establishment, Harwell; Lord Cherwell, a physicist, and principal adviser to Prime Minister Churchill on nuclear energy matters; and Sir Christopher Hinton, an engineer who is Britain's production manager in the nuclear field. Discussions were held with these officials by Lewis L. Strauss, head of the U. S. Atomic Energy Commission, other executives of the USAEC, and of the Departments of State and of Defense. Britain's feeling toward increased nuclear energy cooperation was put forth by Duncan Sandys, the British Supply Minister, who last August told the House of Commons that as nuclear development continues in Britain, "it is being recognized in the United States that we have more and more to offer", and that such exchange of information would not be a completely one-sided affair. (In the United States, President Eisenhower already has indicated that he favors freer exchange of information on nuclear energy matters among the nations which collaborated on the subject during World War II.)

President Eisenhower in the last fortnight revealed that a stock pile of fission-type nuclear weapons is now available in the Soviet Union, and that he believes there are also thermonuclear weapons possessed by the USSR. This can enable the Soviet Union to make an atomic attack on the United States, he further stated. The President also attempted to impress upon the Soviet Union the appalling prospect of atomic war and the need for an understanding concerning such weapons; and in a speech in Atlantic City he told of "the sudden and mass destruction, erasure of cities, and the possible doom of every nation and society" by the atomic bomb. This latter talk was his approach to the thought that the West must persevere in the attempt to get the Soviet leaders to the conference table. (Other Washington officials in the last fortnight issued various statements on atomic matters: Arthur S. Fleming, head of the Office of Defense Mobilization, said in his quarterly report that Soviet Russia is capable of delivering the most destructive weapon ever devised by man on chosen targets in the United States. W. Sterling Cole, Chairman of the Joint Congressional Committee on Atomic Energy, asked for \$10 billion a year increase for air defense, saying "I don't find it hard to choose between financial ruination for my country and atomic devastation". And Charles E. Wilson, Secretary of Defense contradicted these officials, saying that the Soviet Union was about three or four years behind the United States in atomic development, and that a \$500 million a year increase for air defense would be adequate.)

BUSINESS NEWS...in the nuclear energy field...

NEW GROUPS TO MAKE NUCLEAR POWER STUDY: Five companies, four of which have been participants in previous nuclear power studies for the past two years, have now joined in a new USAEC-approved study of nuclear power. These five companies are American Gas & Electric Service Corp., New York; Bechtel Corp., San Francisco; Commonwealth Edison Co., Chicago; Pacific Gas & Electric Co., San Francisco; and Union Electric Co., St. Louis. Initial objectives of the new group are to select a design of a nuclear reactor intended primarily for the production of electric power within the near future, and to make a preliminary economic appraisal of such a design. The four utility companies in the group own more than 10½ million kilowatts of electric generating capacity, with combined annual kilowatt sales exceeding 48½ billion. Bechtel Corp. is an engineering and construction company. All costs of the study will be borne by the companies involved. The contract, between the firms and the USAEC, will run for one year, after which a complete report of findings and recommendations will be submitted to the USAEC. Title to inventions and discoveries and disposition of reports made in the course of the study will be determined by the USAEC under provisions of the Atomic Energy Act of 1946.

An agreement has also been made with Duquesne Light Co., Pittsburgh, and Walter Kidde Nuclear Laboratories, Inc., Garden City, L.I., by the USAEC, under which a nuclear power reactor study will be undertaken by these firms. The two companies thus make up the sixth team from private industry to engage in power studies under the USAEC's industrial participation program. The work the firms will do includes a survey of the feasibility of design, construction, and operation by private industry of power-producing nuclear reactors. Preceding this entry by Duquesne Power into the study with the Kidde Laboratories, some forty of Duquesne's engineers attended a special course on nuclear energy conducted for the company by Dr. Edward C. Creutz, head of the department of physics, Carnegie Institute of Technology. The firms will bear all costs of the study, under this contract with the USAEC, which runs for one year.

NEW POWER REACTOR PROPOSED: A proposal will be made to the USAEC that a nuclear reactor, to produce both usable power, and plutonium, be constructed by the General Electric Co., at Richland, Washington, Ralph J. Cordiner, G-E president, revealed last week at Richland. General Electric operates the Hanford Plutonium Works, at Richland, for the USAEC. Mr. Cordiner asserted that G-E, through its long operation of Hanford, and its research elsewhere, had acquired the "know-how" for such an undertaking. The plant would be government owned, and financed; costs are estimated at \$50 million. Hanford now obtains its power from the Bonneville Dam, and because of this the Pacific Northwest has been power starved during low-water periods for several years. Presumably, such a power reactor might lighten this load, and even contribute to the region's power.

URANIUM MINING INDUSTRY IN U. S. AT NEW HIGH LEVEL OF PRODUCTION: The domestic uranium mining industry is operating at ever increasing levels of production, and the ore supply now exceeds milling capacity, Sheldon P. Wimpfen, manager of the USAEC's operations office at Grand Junction, Colo., stated before the American Mining Congress convention at Grand Junction, Colo., recently. Wimpfen noted that of some 500 mining properties currently shipping uranium ores to market in the western part of the United States, primarily from the Colorado Plateau, about 475 are completely private operations. Only the small remaining number, he said, are operated under lease from the USAEC. Mining costs range from \$8 to \$28 per ton, and profits from \$5 to \$29 per ton, he stated. (This is due in large measure to the bonus system over and above the established price schedule, and the haulage allowances.)

INSTRUMENT FIRMS MAKE CHANGES: Dr. E. B. Tilton has now been elected Chairman of the Board and chief executive officer of Nuclear Instrument and Chemical Corp., Chicago manufacturer of radiation detection and measuring instruments...Radiation Counter Laboratories, Skokie, Ill., has appointed Mr. Paul W. Lawrason as sales manager of that firm. For the past two years, Mr. Lawrason has been a manufacturer's representative for several electronics firms.

NEW PRODUCTS, PROCESSES, & SERVICES...in the nuclear field...

FROM THE MANUFACTURERS: Decimal scaler, Model 2001, is a new laboratory instrument for radioactivity measurement. An electronic scale of 1000 is utilized, and special circuitry provides for a large number of preset counts and scaling factors for operating external registers or other devices. A drum-type time clock is located on the front panel, directly beneath the mechanical register, to simplify reading and recording information. The high-voltage supply provides regulation for operation with scintillation counters as well as Geiger tubes. (The instrument is designed to replace this manufacturer's Model 2000 scaler; it is said to perform essentially the same operations with greater flexibility and to incorporate improved circuitry.)--Berkeley Scientific Div., Beckman Instruments, Inc., Richmond, Calif.

Automatic system for exploring distributed radioactivity on paper radiochromatograms, is trade-named "Actigraph" system. In operation, the system locates and estimates quantitatively the components separated on the chromatogram by systematically scanning the paper strip with a thin-window Geiger counter. This "Actigraph" system consists of a strip feeder, a lead shield which contains the mica end window counter and a collimating slit, an analytical count rate meter, and an Esterline-Angus chart type recorder. The strip chromatogram is taped to a long metal strip table, then passed through the lead shield, and through the rollers of the strip feeder. The movement of the paper strip is synchronized with the movement of the recording chart so that a direct comparison may be made after the strip has been scanned. The rate of progress of both the chart and the strip may be set to any one of eight different speeds from 0.75-to 360-inches per hour. Special tables permit the instrument's use as a simple sample changer or with absorbers to produce a characteristic absorption curve.--Nuclear Instrument & Chemical Corp., Chicago 10, Illinois.

NEW BOOKS & OTHER PUBLICATIONS...in the nuclear field...

Report on the Atom, by Gordon Dean, former Chairman, USAEC. A factual account, in popular style, of what the United States atomic energy program consists. 321 pages.--Alfred A. Knopf, New York. (\$5.00)

Atomic Power Development, and Private Enterprise. Hearings which the 83rd Congress, 1st Session, held on the subject from June 24-July 31, 1953. 649 pages. Superintendent of Documents, Wash. 25, D. C. (\$1.50)

Magnetic Filter; preliminary development. Work done during nuclear power research at Atomic Energy Research Establishment, Harwell (England). 11 pages. British Information Service, New York 20, N. Y. (50¢)

RAW MATERIALS...radioactive minerals for nuclear energy work...

UNITED STATES: Durango, Colo.: A successful strike of uranium (and vanadium) has been reported in the mining district north of Dove Creek, in Dolores county. Assays from 10 claims filed by J. H. Nelson there were reported to have a high percentage of both minerals...Cripple Creek, Colo.: A five year lease on the seven Sunday uranium claims located on the west rim of Gypsum Valley, San Miguel County, Colo., has been obtained by Dante Exploration Co., according to president Franklin Ferguson, who states that bulldozing operations are already underway there...Two diamond core rigs are at work on a uranium prospect of New Park Mining Co., at Lisbon Anticline, San Juan County, states W.H.H. Cranmer, firm president. Mack Drilling Co., which has the contract for this work, is sinking holes to a depth of 200 to 300-ft.

CANADA: A new radioactive discovery has now been made by Peach Uranium & Metal Mining, on its acreage in Sheldon Twp., Blind River area, about half-way between Sault Ste. Marie, and Sudbury, the firm advises. Trenching is to get underway immediately, it is reported...Work done at St. Simeon Uranium Corp's property includes airborne magnetometer and scintillation surveys, shareholders of the company were told at the annual meeting. Following these surveys, the company's holdings were increased by staking from 600 to 1,400 acres, it was stated.

NUCLEAR ENERGY WORK OUTSIDE THE UNITED STATES...

AUSTRALIA: A relatively small nuclear device was exploded last week by a team of British scientists at the Woomera rocket range, in Australia. The operation, officially named Project X-200, was headed by Sir William Penney. The nuclear device, described as of relatively small fissile content, was detonated from a steel tower at this range, which is some 550-miles northwest of Adelaide.

A day after this nuclear explosion, Australian Prime Minister Robert Menzies, speaking in the Australian House of Representatives, Melbourne, said that he favored an early meeting of world leaders to see whether they could reach an understanding on nuclear weapon controls. Mr. Menzies said he could not accommodate his mind to the idea that the free world could talk to people behind the Iron Curtain with only the voices of guns and bombs. But the time for reaching agreement on atomic controls is short, he warned. And the place where such representation should be made is the Assembly of the United Nations, the Prime Minister added.

BELGIUM: A non-profit company which will investigate nuclear energy for industrial use has been founded here under the chairmanship of M. Ryckmans, former Governor-General of the Belgian Congo. A Belgian center for nuclear research is to be organized either at Marche, in the Belgian province of Luxembourg, or at Moll, in the Campine area of the province of Antwerp. The research will mainly concern the application of nuclear energy in the chemical and metal industries.

RADIOISOTOPES...news & notes...

Handling Radioactive Wastes: In London (England) a new method for dealing with the drainage and effluent of radioactive materials has been adopted at Hammersmith Hospital's new laboratory there. Since it is necessary to keep these materials separate from other wastes, this means special containers, pipelines, and pits for collecting them. Now, to resist the effect of radioactive materials upon this equipment, a coating of synthetic rubber which vulcanizes on drying, has been trowelled on to the storage pits and sumps. These coatings waterproof without the need for heat as the compound merely dries by loss of solvent. Research is now being done to determine whether this coating material, originally developed and used for this radioactive application, can be utilized elsewhere.

Radioisotopes Used in Vacuum Tube Manufacture: Eastern vacuum tube manufacturers are now using radiocobalt to improve the operating characteristics of their products. Tubes, such as voltage regulator, and switching tubes, used in various electronic applications, have a time lag before operating. Although the time lag is short, it is undesirable and tube manufacturers have been anxious to eliminate it. It was found that by placing a small quantity of radiocobalt solution on the tube electrodes, that the tube "fires" immediately, and consistently, and thus allows equipment to be ready without delay.

CONTRACTS AWARDED...in nuclear science & engineering fields...

Among the various sub-contracts being let by Westinghouse Electric's Atomic Power Division, in connection with work on the prototype submarine nuclear reactor, Mark I, a contract for chemical analyses and measurements has now been awarded Tracerlab, Inc., Boston nuclear products firm. Tracerlab will handle this work for the Mark I project, which is located at the National Reactor Testing Station, Arco, Idaho, through its industrial consulting department, under the direction of Dr. Edward Shapiro.

Some thirty-seven unclassified physical research contracts with universities and private research establishments have now been awarded by the USAEC. These contracts which generally were for a term of one year, were let as part of the USAEC's policy of utilizing private research laboratories in conducting research related to atomic energy. Largest grant (\$524,180.00) was to Columbia University, New York for investigations by W.W. Havens, Jr., in neutron spectroscopy and nuclear physics. Another grant (\$23,995.00) went to Great Lakes Carbon Corporation, for investigations by L.H. Juel connected with high density graphite. Generally, the institutions participate with the USAEC in defraying the costs of the research. The institution contributes the funds, and services, which it normally devotes to work in that field, and the USAEC provides additional assistance for equipment, salaries, etc.

ATOMIC PATENT DIGEST...recent U. S. grants...

Electromagnetic centrifugal pump, for electrically conductive fluids. Comprises (in part) the combination of a disk-shaped chamber, with insulating side walls, and an enlarged peripheral portion with conducting side walls. An inlet is in the center of the disk-shaped chamber, with a direct potential source set up between the peripheral portion and the inlet that extends radially within the disk-shaped chamber, with means for creating a magnetic field perpendicular of the chamber. U. S. Pat. No. 2,652,778 issued Sept. 22nd, 1953; assigned to United States of America (USAEC). (Inventor: Frederick E. Crever.)

Process for the recovery of radioactive phosphorous values from a mass of neutron-irradiated sulfur. Comprises mixing the molten sulfur with aqueous nitric acid, cooling it, thereby causing the bulk of molten sulfur to solidify, and so separating the obtained radioactive-phosphorous-values from the bulk of the solidified sulfur. The radioactive phosphorous values are then carrier precipitated from solution upon a metal hydroxide precipitate insoluble in this aqueous nitric acid solution by precipitating an insoluble metal hydroxide in the obtained separated solution. The separated precipitate and its associated radioactive phosphorous values are then dissolved in an aqueous inorganic acid, and the cation of the metal hydroxide employed is eliminated from the resulting solution. U. S. Pat. No. 2,653,076 issued Sept. 22nd, 1953; assigned to United States of America (USAEC). (Inventor: Waldo E. Cohn.)

X-ray thickness gauge for measuring material thickness, using two independent X-ray beams. Light producing means are responsive to the intensity of the respective X-ray beams after passage through a material of known thickness, and a material of unknown thickness, and light sensitive means are responsive to said light producing means, and are operable to produce a pulsating voltage corresponding to any difference in the intensity of these X-ray beams, as a measure of the deviation in the thickness of the unknown, through associated circuitry. U. S. Pat. No. 2,653,247 issued Sept. 22nd, 1953; assigned to Westinghouse Electric Corp., East Pittsburgh, Pa. (Inventor: Walter N. Lundahl.)

Probability scaler. The combination of a random count radioactivity detector, a coincidence circuit receiving the output of this detector, a pulse generator producing a continuous series of pulses of a predetermined spacing, and means for applying these generated pulses to the coincidence circuit to provide an output from them. U. S. Pat. No. 2,653,248 issued Sept. 22nd, 1953, to Gilbert J. Perlow, and Clarence A. Schroeder, Washington, D. C.

Method of forging beryllium metal. Comprises (in part) the steps of forming a unit by encasing a beryllium billet within an envelope of a metal capable of being forged, and interposing a stratum of an inert refractory oxide between the peripheral surface of the beryllium billet, and inner surface of the metallic jacket. A portion of the unit is then subjected to a forging operation within a range of temperature from about 700 deg. C., to the melting temperature of the minimum melting eutectic of the beryllium and the forgeable metal. U. S. Pat. No. 2,653,494 issued Sept. 29th, 1953; assigned to United States of America (USAEC). (Inventor: Edward C. Creutz.)

Process for the production of uranium tetrafluoride. Comprises (in part) heating an ammonium uranium fluoride at a temperature at which dissociation occurs with liberation of ammonium fluoride so as to directly produce uranium tetrafluoride. U. S. Pat. No. 2,654,654 issued Oct. 6, 1953, assigned to Imperial Chemical Industries, Ltd., Great Britain. (Inventors: Amy S. Leah and Ronald B. Mooney.)

Beam deflector, in an accelerator of ionized particles. Comprises, in part, several curved and spaced conductive bars located about the path of travel of these ionized particles, a frame with the same general configuration as these bars radially and outwardly spaced from the latter. U. S. Pat. No. 2,654,851 issued Oct. 6, 1953; assigned to United States of America (USAEC). (Inventor: Dominic T. Scalise.)

Sincerely,

The Staff,  
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